



UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/089,061	04/04/2002	Michel Pineri	221282US0XPCT	3063
22850	7590	03/22/2005	EXAMINER	
OBLON, SPIVAK, MCCLELLAND, MAIER & NEUSTADT, P.C.			HAMPTON HIGHTOWER, PATRICIA	
1940 DUKE STREET			ART UNIT	
ALEXANDRIA, VA 22314			PAPER NUMBER	

1711

DATE MAILED: 03/22/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/089,061

Applicant(s)

PINERI ET AL.

Examiner

Patricia Hightower

Art Unit

1711

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 16 December 2004.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-3 and 5-30 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-3 and 5-30 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 04 April 2002 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
 - ☐ Certified copies of the priority documents have been received in Application No. _____.
 - ☒ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

Response to Amendment

In view of the applicants' amendment/response filed December 16, 2004 the rejections of the claims under the judicially created doctrine of obviousness-type double patenting over USP 6,425,944, USP No. 6,596,838 and USP No. 6,245,881 are being maintained for reasons of record.

The cancellation of claim 4 in the amendment filed December 16, 2004 is acknowledged; claims 1-3 and 5-30 are presently pending.

The rejection of the claims under 35 USC 112, second paragraph has been obviated in view of the amendment filed December 16, 2004; and, the objection to the specification has been withdrawn in view of the applicants filing an Abstract in single-paragraph form on a separate sheet.

Applicant's arguments filed December 16, 2004 have been fully considered but they are not persuasive. The applicants argue, "that the claimed block sulfonated polyimides of formula (I) have an excellent lifespan when used as an ion-exchange membrane in applications such as fuel cells and said block sulfonated polyimides are more stable when the sequence or block containing the sulfonic acid groups in the polyimides of formula (I) is extended such that x is a real number from 5 to 10 and y is greater than or equal to x. This increase in stability leads to improved ion-exchange membranes for products such as fuel cells." The applicants further argues that:

- 1) USP 6,425,944, describes a sulfonated polyimide polymer that has random x and y values where **some x and y values can be less than 5** in the repeating units of a **polymer with the general structure of formula (I);**

Art Unit: 1711

2) The applicants admit at page 16, third paragraph of the Remarks/Arguments, while formula (I) is generic to both the '944 patent and the claimed invention, '944 does not ***teach or suggest the specific block structure of the presently claimed invention for the repeating units x and y (i.e., x is a real number from 5 to 10 and y is a real number greater than or equal to x).***

3) The applicants argue in the '944 all the reactants are added to the reactor in a one step process to form the sulfonated polyimide polymer and that this one step synthesis leads to a polymer species with random x and y values for a polymer with the generic structure of formula (I) and that the random values can be values such that x and y are less than 5.

4) However, ***the applicants admit that the exemplary method described in '944 is a two step process with a first step preparation of blocks of x and y and a second polymerization step into a block polymer species of a sulfonated polyimide of formula (I). This synthetic approach is illustrated in Example 1 of the present application.*** The applicants argue that here the two-step synthesis is conducted to build the x and y repeating units to 5 or greater before polymerization into the sulfonated polyimide of the formula (I). This approach gives a block structure to the polymer as opposed to the random structure of the polymer described by the process in '944.

5) The applicants argue that the two-step approach described in the present application for forming this blocked species of sulfonated polyimides with the generic structure of formula (I) is not taught or suggested by the reference '944 nor is any other method for producing a block sulphonated polyimide as claimed in Claim 1.

Art Unit: 1711

6) The applicants argue last paragraph of page 17 to page 18, when x and y values of the polymer are as claimed, the polymer has better aging properties and better resistance to hydrolysis that leads to improved performance as an ion-exchange membrane relative to random polymers with x and y values less than 5.

7) Overall, the applicants argue that the claimed block sulphonated polyimide is not taught or suggested by the '944 reference and the rejection should be withdrawn, and for reasons discussed above for reference '944 the applicants respectfully request that the rejection of the claims **over USP 6,245,881 and USP 6,376,129** be withdrawn.

All of the applicants' pertinent arguments have been considered, but are deemed not to be persuasive. The applicants' argument *that the block sulphonated polyimides are more stable when the sequence or block containing the sulfonic acid groups in the polyimides of formula (I) is extended such that x is a real number from 5 to 10 and y is greater than or equal to x; this increase in stability leads to improved ion-exchange membranes for products such as fuel cells.* And that **while formula (I) is generic to both the '944 patent and the claimed invention, '944 does not teach or suggest the specific block structure of the presently claimed invention for the repeating units x and y (i.e., x is a real number from 5 to 10 and y is a real number greater than or equal to x).**

It is the position of the examiner that the '944 sulphonated polyimide polymer and the membrane comprising the sulphonated polyimide and the membrane used in a fuel cell device encompasses the instant sulphonated polyimide, the membrane comprising the sulphonated polyimide and a fuel cell device comprising the membrane prepared

Art Unit: 1711

from the sulphonated polyimide. This position is supported by the specification of '944 at col. 4, lines 40 – col. 5, lines 5-21,30-38,39-43,44-49, it is permissible to use the specification as a dictionary to define what appears in the claims:

*In formula (I) **m represents a whole number preferably 1 to 20, more preferably from 2 to 10;** n represents a whole number preferably from 1 to 30, more preferably from 2 to 20. The specific sulphonic co-polyimides can easily be formed into films or membranes of suitable thickness, the polymers have a very high ion exchange capacity greater than 0.4 meq/g, for example from 0.8 to 2.5 meq/g which is greater than the ion exchange capacity of the polymer of the prior art which generally achieve only a maximum of 0.9 to 1.2 meq/g. The membranes comprising the polymers also have high thermal stability, for example to acid hydrolysis at high temperature, that is to say for the most stable membranes up to temperatures that can reach, for example 100°C and this for a long duration that can extend, for example 5,000.*

Although the applicants' argue that the sulphonated polyimide polymer of '944 is prepared by a one step process resulting in random polymers wherein the values of x and y can be less than 5; and that the instant application teaches a two step process of preparing the sulphonated polyimides resulting in block sulphonated polyimides wherein the x and y values are from 5 to 10; such argument has been noted. However, the applicants are arguing limitations (method or process of preparing) that do not appear in the claims. The applicants are claiming the block sulphonated polyimide, a membrane comprising the block sulphonated polyimide and a fuel cell device comprising at least

Art Unit: 1711

one membrane comprising a sulphonated polyimide. Thus, the position taken in regards to USP No. 6,425,944 stands also for USP 6,376,129 and USP 6,245,881.

Obviousness-type Double Patenting Rejection

The nonstatutory double patenting rejection is based on a judicially created doctrine grounded in public policy (a policy reflected in the statute) so as to prevent the unjustified or improper timewise extension of the "right to exclude" granted by a patent and to prevent possible harassment by multiple assignees. See *In re Goodman*, 11 F.3d 1046, 29 USPQ2d 2010 (Fed. Cir. 1993); *In re Longi*, 759 F.2d 887, 225 USPQ 645 (Fed. Cir. 1985); *In re Van Ornum*, 686 F.2d 937, 214 USPQ 761 (CCPA 1982); *In re Vogel*, 422 F.2d 438, 164 USPQ 619 (CCPA 1970); and, *In re Thorington*, 418 F.2d 528, 163 USPQ 644 (CCPA 1969).

A timely filed terminal disclaimer in compliance with 37 CFR 1.321(c) may be used to overcome an actual or provisional rejection based on a nonstatutory double patenting ground provided the conflicting application or patent is shown to be commonly owned with this application. See 37 CFR 1.130(b).

Effective January 1, 1994, a registered attorney or agent of record may sign a terminal disclaimer. A terminal disclaimer signed by the assignee must fully comply with 37 CFR 3.73(b).

Claims 1-3 and 5-30 stand rejected under the judicially created doctrine of obviousness-type double patenting as being unpatentable over claims 1-3 of U.S. Patent No. 6,425,944. Although the conflicting claims are not identical, they are not patentably distinct from each other because the instant application and the patent (USP 6,425,944) are viewed as claiming overlapping subject matter; a membrane comprising a sulphonated polyimide. The patent and the instant application are claiming a product – a membrane comprising a sulphonated polyimide that appears to be prepared from identical reactants with only a slight difference in the arrangement of the resulting sulphonated polyimide. Therefore, in view of the overlapping subject matter it is viewed that one set of claims cannot be infringed without literally infringing the other set of claims and an obviousness-type double patenting rejection is proper.

Art Unit: 1711

Claims 1-3 and 5-30 stand rejected under the judicially created doctrine of obviousness-type double patenting as being unpatentable over claims 1-14 of U.S. Patent No. 6,245,881. Although the conflicting claims are not identical, they are not patentably distinct from each other because the instant application and the patent (USP 6,245,881) are viewed as claiming overlapping subject matter; a sulphonated polyimide prepared from overlapping reactants. In an instance in which one set of claims cannot be infringed without literally infringing those of the other set of claims, an obviousness-type double patenting rejection is proper.

Claims 1-3 and 5-30 stand rejected under the judicially created doctrine of obviousness-type double patenting as being unpatentable over claims 1-3 of U.S. Patent No. 6,376,129. Although the conflicting claims are not identical, they are not patentably distinct from each other because the instant application and the patent (USP 6,376,129) are viewed as claiming overlapping subject matter – a fuel cell device comprising at least one membrane comprising a sulphonated polyimide in which the sulphonated polyimide appears to be prepared from overlapping reactants. In an instance where one set of claims cannot be infringed without literally infringing the other set of claims, an obviousness-type double patenting rejection is proper.

Claim 29 is objected to because of the following informalities: At line 1 of the claim the term "sulfonate" should have been – sulfonated --. Appropriate correction is required.

Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP

Art Unit: 1711

§ 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

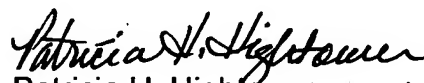
A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Patricia Hightower whose telephone number is (571) 272-1073. The examiner can normally be reached on M-F from 9:30 A.M. - 6:00 P.M.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, James Seidleck can be reached on (571) 272-1078. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Art Unit: 1711

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).


Patricia H. Hightower
Primary Examiner
Art Unit 1711

P. Hightower: ph
March 05, 2005